

FIG. 1

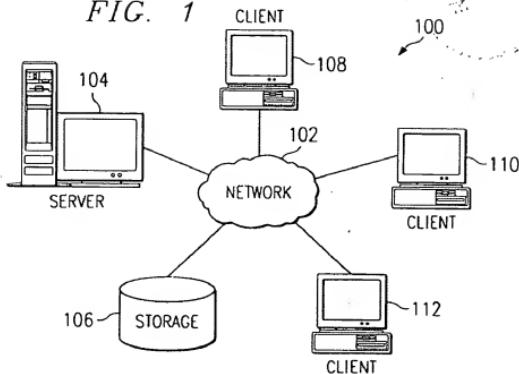
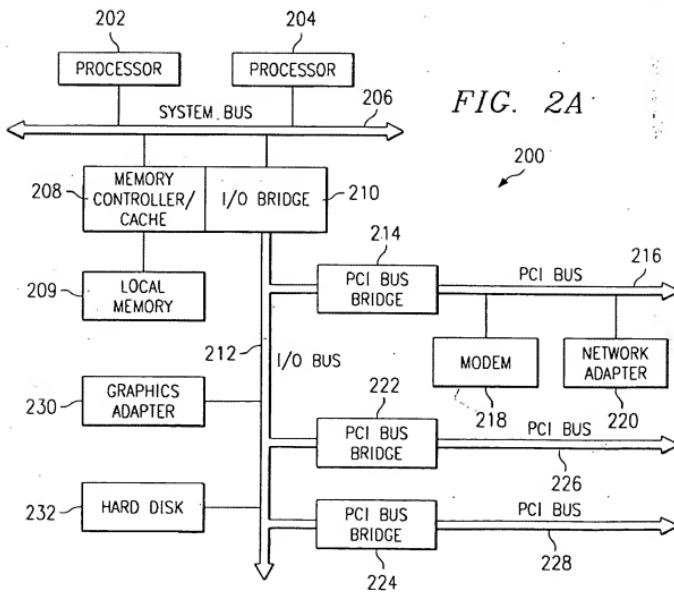


FIG. 2A



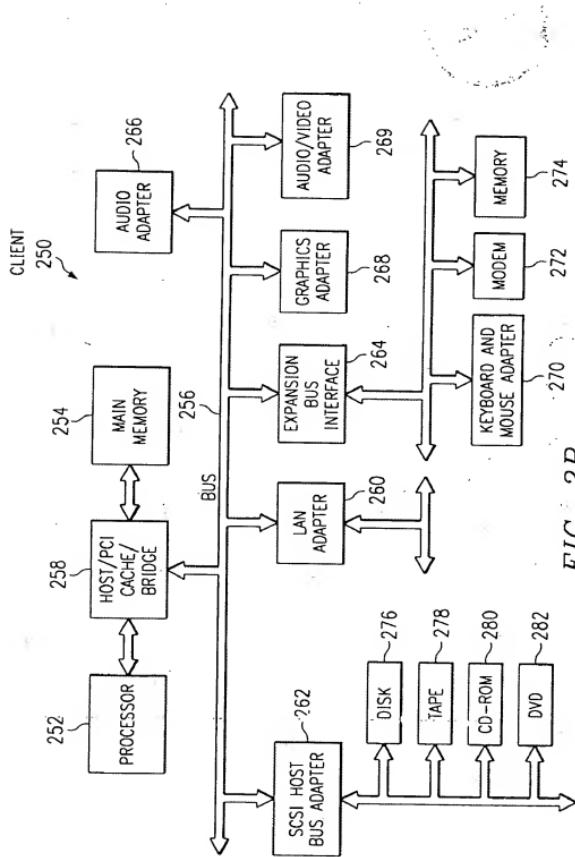
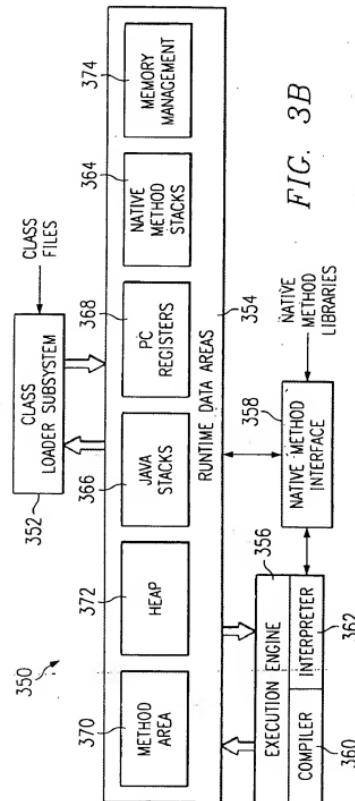
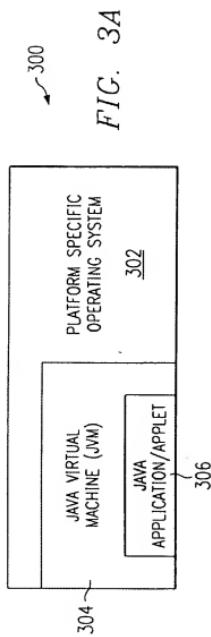


FIG. 2B



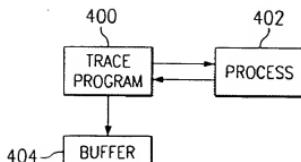
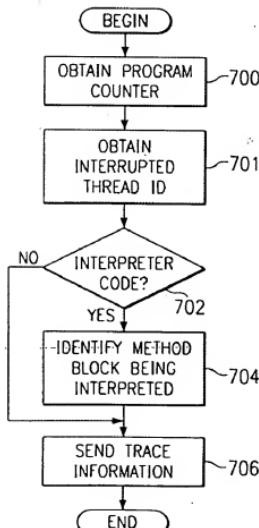
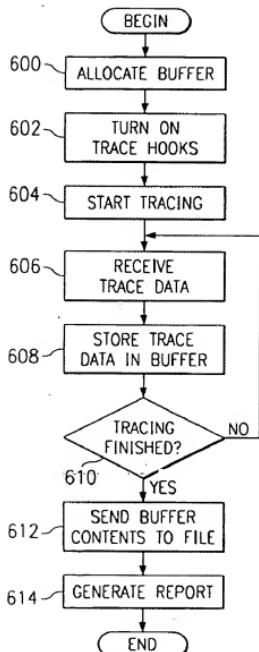
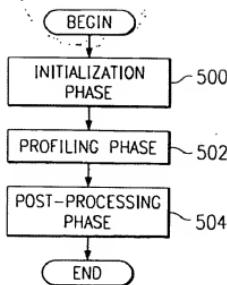


FIG. 4



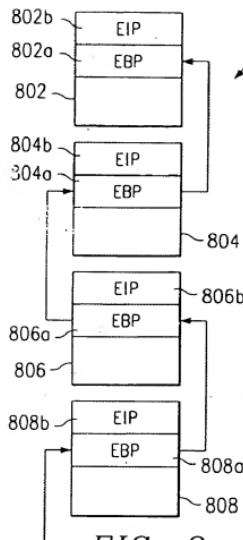


FIG. 8

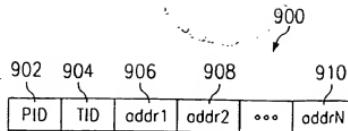


FIG. 9

SAMPLE	CALL STACK @ SAMPLE
1	C
2	CAB
3	CAB
4	CAB
5	C
6	CBA
7	CBABA
8	CBA
9	CBA
10	C

FIG. 10B

TIMESTAMP	EVENT	CALL STACK AFTER EVENT
0	ENTER C	
1	ENTER A	C
2	ENTER B	CA
3	EXIT FROM B	CAB
4	ENTER B	CA
5	ENTER B	CAB
6	EXIT FROM B	CABB
7	EXIT FROM B	CAB
8	EXIT FROM A	CA
9	ENTER B	C
10	ENTER A	CB
11	ENTER B	CBA
12	ENTER A	CBAB
13	EXIT FROM A	CBABA
14	EXIT FROM B	CBA
15	ENTER X	CBAX
16	EXIT FROM X	CBA
17	EXIT FROM A	CB
18	EXIT FROM B	C
19	EXIT FROM C	

FIG. 10A

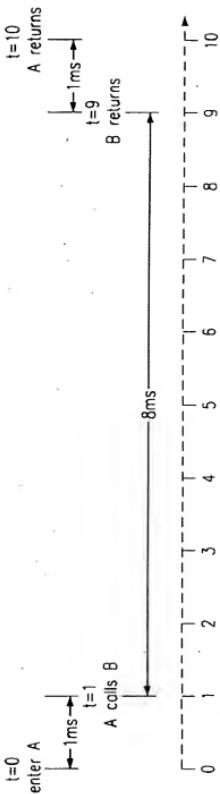


FIG. 10C

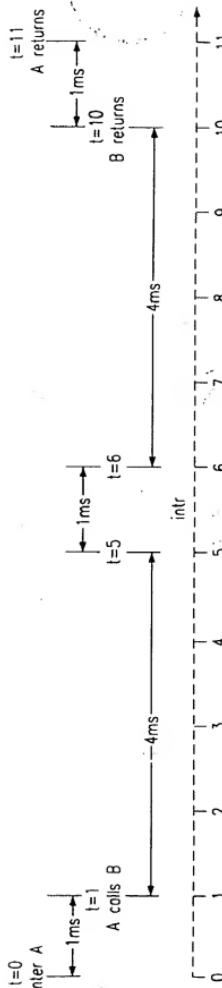


FIG. 10D

FIG. 11A

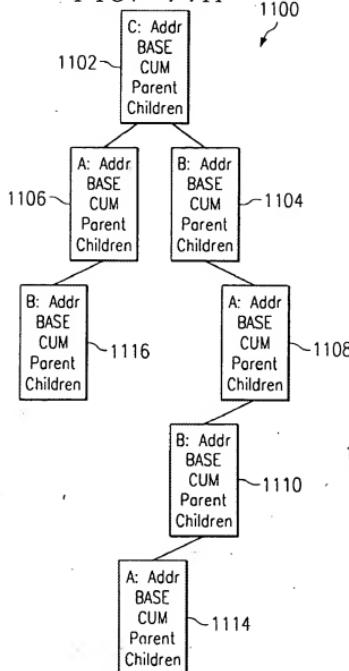


FIG. 11B

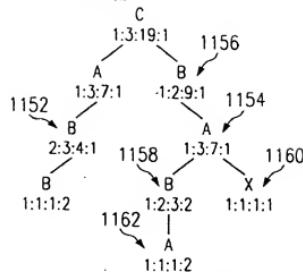


FIG. 12

LEVEL	RL	CALLS	BASE	CUM	INDENT
0	1	1	0	19	pl.pidtid
1	1	1	3	19	-C
2	1	1	3	7	--A
3	1	2	3	4	---B
4	2	1	1	1	----B
2	1	1	2	9	--B
3	1	1	3	7	---A
4	2	1	2	3	----B
5	2	1	1	1	-----A
4	1	1	1	1	----X

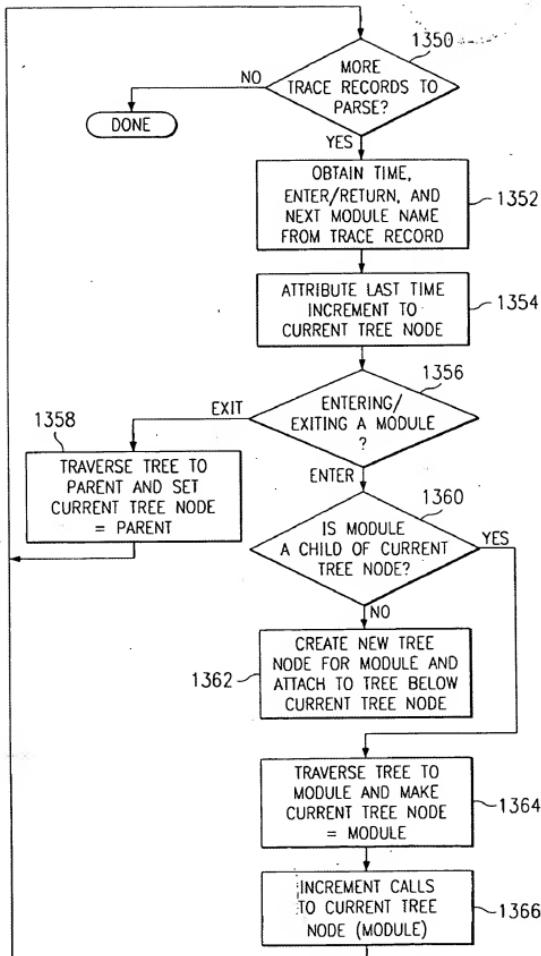
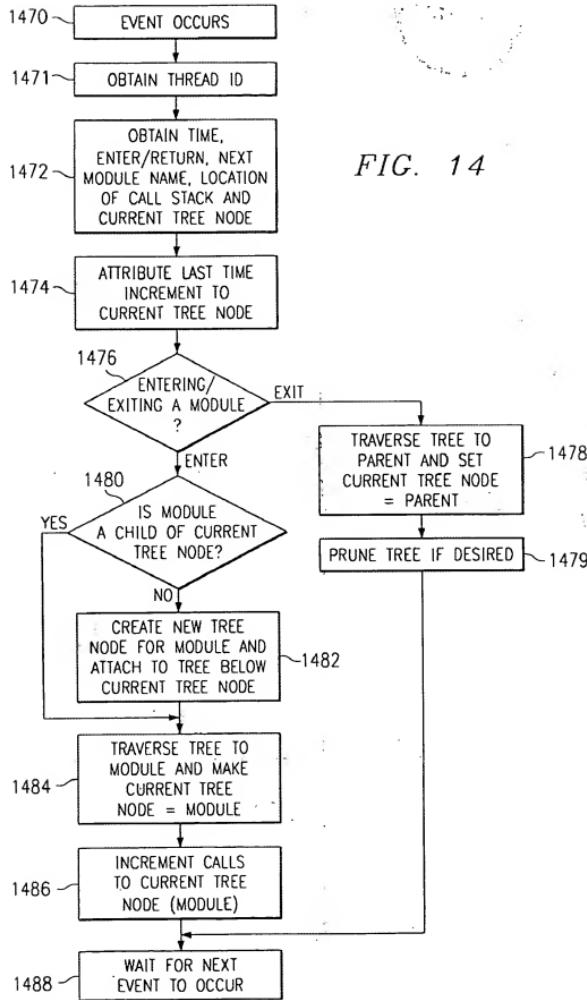


FIG. 13



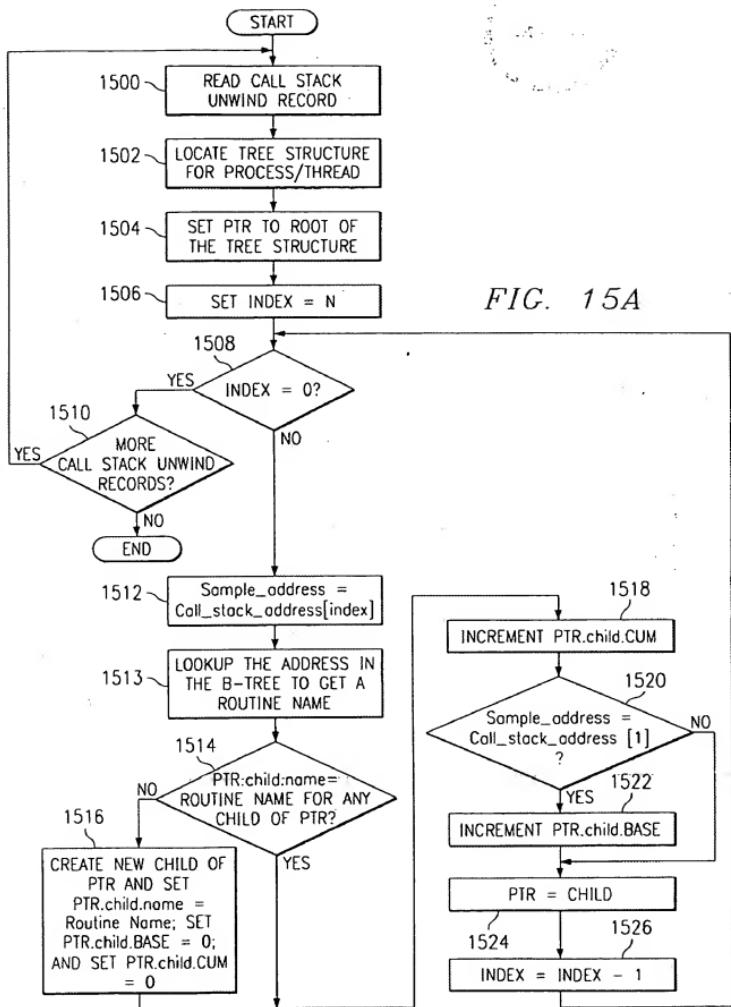


FIG. 15B

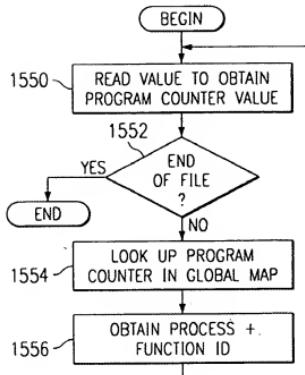
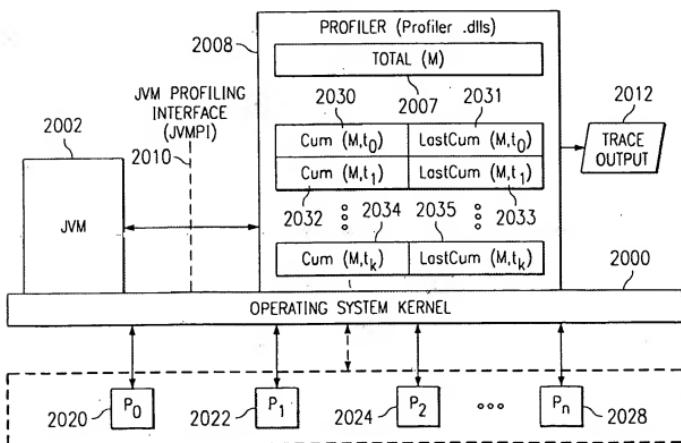


FIG. 16

CALLS	BASE	CUM	NAME
1	0	19	pL_pit.tid
1	3	19	C
3	7	14	A
5	8	13	B
1	1	1	X

1600
 1602 1604 1606 1608

FIG. 20



12/18
AUS990853US1

1700

ArcFlow Output

Base - Time/Instructions directly in function

Cum - Time/Instructions directly & indirectly in function

ArcFlow Invariants:

- 1) $\text{Sum}(\text{Parent}(\text{Calls})) = \text{Self}(\text{Calls})$
- 2) $\text{Sum}(\text{Parent}(\text{Base})) = \text{Self}(\text{Base})$
- 3) $\text{Sum}(\text{Parent}(\text{Cum})) = \text{Self}(\text{Cum})$
- 4) $\text{Sum}(\text{Child}(\text{Cum})) = \text{Self}(\text{Cum}) - \text{Self}(\text{Base})$

Source	Calls	Base	Cum	Function
Self	1	0	19 [0]	pt_pitid
Child	1	3	19	C
Parent	1	3	19	pt_pitid
Self	1	3	19 [1]	C
Child	1	2	9	B
Child	1	3	7	A
Parent	1	3	7	C
Parent	1	3	7	B
rParent	1	1	1	B
Self	3	7	17 [2]	A
			15	
Child	3	5	7	B
Child	1	1	1	X
Parent	2	3	4	A
rParent	1	2	3	A
Parent	1	2	9	C
Self	5	8	13 [3]	B
			17	
Child	1	3	7	A
rChild	1	1	1	A
Child	1	1	1	B
Parent	1	1	1	A
Self	1	1	1 [4]	X

FIG. 17

Units :: Ticks
Total :: 342

1800

Lvl	RL	Calls	Bose	Cum	Indent	Name
1	1	1	0	342	-	_Thread-21_(0xe0046618)
2	1	3	0	342	--	J:nulitestScore()
3	1	2	0	272	---	J:nulitestMilliseconds()
4	1	29450	0	271	----	J:nullexecute()
5	1	271	0	271	-----	stock_0x40
6	1	271	0	271	-----+	F:ExecuteJava ↗1802
7	1	271	0	271	-----+--	F:jt_invokeCompiledEntryMethod
8	1	271	0	271	-----+---	F:_jt_invokeentry
9	1	271	0	271	-----+----	F:JITInvokeCompiledEntryMethod_md
10	1	271	0	271	-----+---+	J:nulldrun()V
11	2	271	0	271	-----+---+	J:nulitestScore()
12	2	271	0	271	-----+---+	J:nulitestMilliseconds()
13	2	271	268	271	-----+---+---	J:nullexecute()
14	1	2	0	2	-----+---+---+	F:perf_methodEntry
15	1	2	0	2	-----+---+---+	F:SoftTracehook
16	1	2	2	2	-----+---+---+--	F:enable_interrupts
14	1	1	1	1	-----+---+---+--	F:perf_methodExit
4	1	1	0	1	-----	stock_0x40
5	1	1	0	1	-----+	F:ExecuteJava ↗1804
6	1	1	0	1	-----+--	F:jt_InvokeCompiledEntryMethod
7	1	1	0	1	-----+---	F:_jt_invokeentry
8	1	1	0	1	-----+---+	F:JITInvokeCompiledEntryMethod_md
9	1	1	0	1	-----+---+	J:nulldrun()V
10	2	1	0	1	-----+---+--	J:nulitestScore()
11	2	1	0	1	-----+---+--	J:nulitestMilliseconds()
12	1	1	0	1	-----+---+--	J:nullexecute()
13	1	1	0	1	-----+---+---	F:perf_methodExit
14	1	1	0	1	-----+---+---+	F:SoftTracehook
15	1	1	1	1	-----+---+---+--	F:enable_interrupts
4	1	2	0	0	-----	J:nulldrunUp()

1806

1808

FIG. 19

MAJOR CODE	MINOR CODE	DATA ITEM 1	DATA ITEM 2	DATA ITEM 3	DATA ITEM-4	DATA ITEM 5	DESCRIPTION
0x4	LEVEL + 0x1	DEPTH	N/A	N/A	N/A		BEGIN INTERRUPT AT LEVEL
0x4	LEVEL + 0x80000001	DEPTH	N/A	N/A	N/A		END INTERRUPT AT LEVEL
0x10	0x0b	SYSTEM TID	JAVA TID	IS SYSTEM THREAD (BOOLEAN)	N/A		THREAD CREATED WITHOUT A NAME WHILE TRACE ACTIVE
0x10	0x0c	SYSTEM TID	N/A	N/A	N/A		IDENTIFIES THE IDLE THREAD
0x10	0x0d	SYSTEM TID	N/A	N/A	N/A		IDENTIFIES THE GARBAGE COLLECTION THREAD
0x10	0x0e	SYSTEM TID	JAVA TID	THREAD NAME	N/A		THREAD CREATED WITH A NAME WHILE TRACE ACTIVE
0x30	0x10	OBJECT ID	METHOD BLOCK ADDRESS	N/A	N/A		METHOD INVOCATION (INTERPRETED)
0x30	0x10 + 0x80000000	OBJECT ID	METHOD BLOCK ADDRESS	N/A	N/A		METHOD EXIT (INTERPRETED)
0x40	0x7fffffff	NUMBER (n) OF STACK UNWINDS AT TIMER INTERRUPT	pc1-PROGRAM COUNTER OF INTERRUPTED ROUTINE	pc2-CALLER OF INTERRUPTED ROUTINE	pcn-1 OF n-2nd CALLER OF INTERRUPTED ROUTINE	pcn OF n-1st CALLER OF INTERRUPTED ROUTINE
0x41	0x7fffffff	NUMBER (n) OF STACK UNWINDS AT INSTRUMENTED ROUTINE	pc1-PROGRAM COUNTER OF INSTRUMENTED ROUTINE	pc2-CALLER OF INSTRUMENTED ROUTINE		pcn OF n-1st CALLER OF INSTRUMENTED ROUTINE
0x50	0x10	OBJECT ID	METHOD BLOCK ADDRESS	N/A	N/A		METHOD INVOCATION (JITTED)
0x50	0x10 + 0x80000000	OBJECT ID	METHOD BLOCK ADDRESS	N/A	N/A		METHOD EXIT (JITTED)

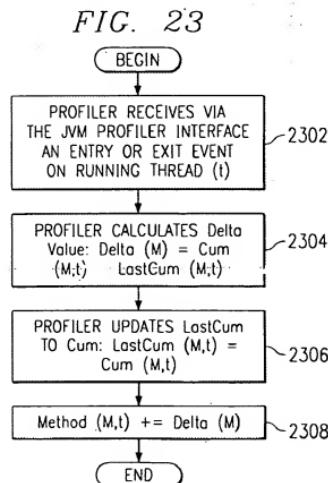
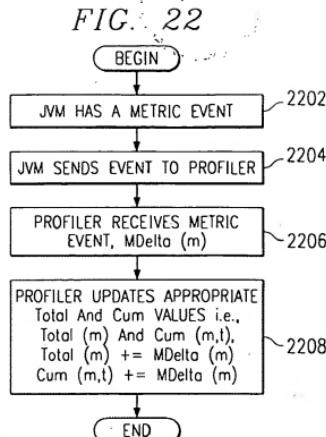
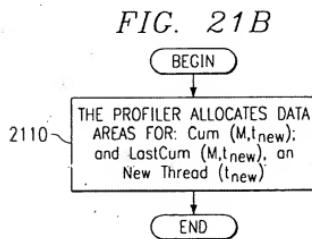
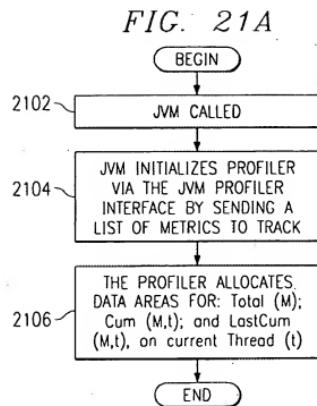


FIG. 24

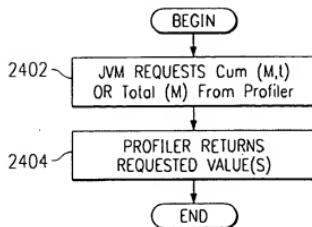


FIG. 25

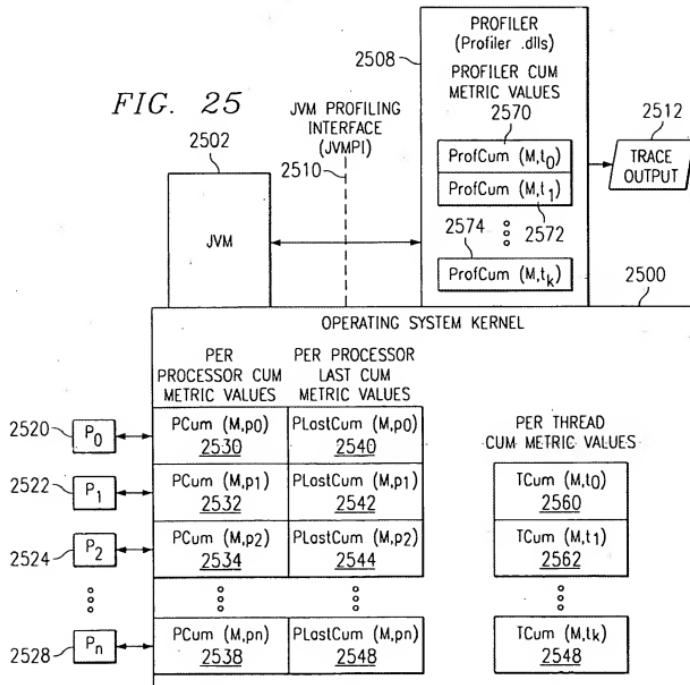


FIG. 26A

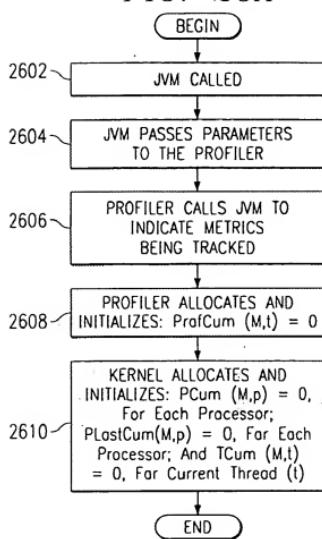


FIG. 26C

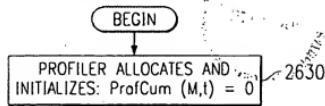


FIG. 27

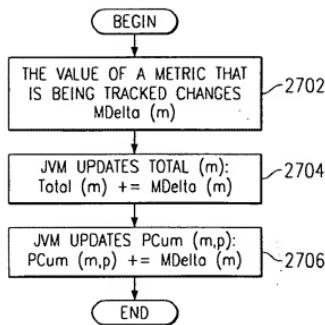


FIG. 26B

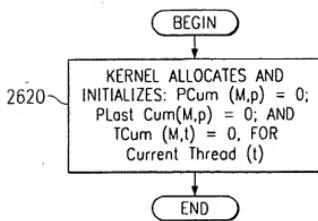


FIG. 28

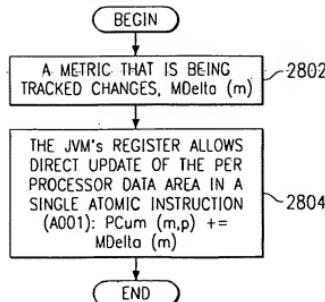


FIG. 29

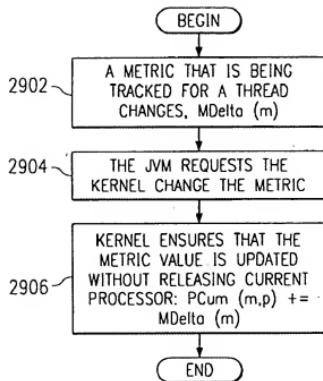


FIG. 30

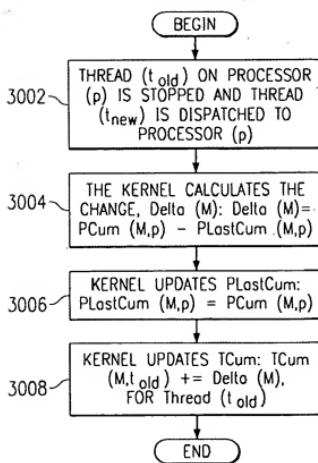


FIG. 31

